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NEW RECORDS OF *BRACHYSTELMA*

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Abstract

Brachystelma perditum, *B. australe*, *B. bruceae*, *B. petraeum* and *B. alpinum* are described for the first time.

Uittreksel

NUWE VERSLAE VAN *BRACHYSTELMA*

Brachystelma perditum, *B. australe*, *B. bruceae*, *B. petraeum* en *B. alpinum* is vir die eerste maal beskrywe.

In general, specimens of *Brachystelma* are few and far between in the veld. On occasions a species may be found to be locally common but very rarely widely common. In consequence species are for the most part imperfectly known and their range of distribution uncertain. The genus was established by Robert Brown ex Sims in *Curtis's Botanical Magazine* t. 2343 (1822) on a plant "communicated in blossom in June last by Mr. Joseph Knight of the Exotic Nursery in the Kings Road".

Carl Thunberg was probably the first botanist to collect a specimen of *Brachystelma* at the Cape during his Travels 1770–1773. He described it briefly in his *Proderomus* in 1794 under the name *Stapelia caudata* but recorded no precise locality. His plant could well have been from the Cape Peninsula but the presence of the species there was not authenticated until nearly 200 years later.

In 1908, N. E. Brown in his monograph of the genus in *Flora Capensis*, could only suggest the presence of the species on the Peninsula. Pillans made no mention of it in the *Flora of the Cape Peninsula* in 1951 and confirmation came fortuitously only when an area near Kommetjie was being cleared for a coloured peoples housing estate in 1968. A member of the Kirstenbosch National Botanic Garden staff picked up a single damaged tuber in full bloom. Mr. Harry Hall, formerly curator of the succulent collection at Kirstenbosch, drew attention to the surprisingly large size of the tuber which measured about 15 cm in diameter with several annual stems. It was a remarkable find.

There is only one other species of *Brachystelma* on the Peninsula, *B. occidentale* Schltr., discovered by Schlechter near Smitswinkel in 1892 and not

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recorded again in spite of recent attempts to locate it. It gives limited satisfaction to base a new species on a single collection for it is obviously inadequate to reveal the natural variation and limits of distribution of the plant in question. On the other hand to refrain from giving a name to what is obviously an unrecorded taxon, such as *B. perditum, B. alpinum* and *B. petraeum* described below, may leave interesting records buried for further centuries. Each one of these taxa may be common in its favoured environment and it is hoped that some enthusiasts will regard a fuller knowledge as its own reward. Col. R. Bayliss, Dr. O. M. Hilliard and others have been helpful in various ways and I am pleased to express my sincere appreciation of the interest and help I have received.

Brachystelma perditum R. A. Dyer sp. nov., affine *B. caudato* (Thunb.) N. E. Br. sed coronae lobis interioribus intus conspicue alatis distinguitur.

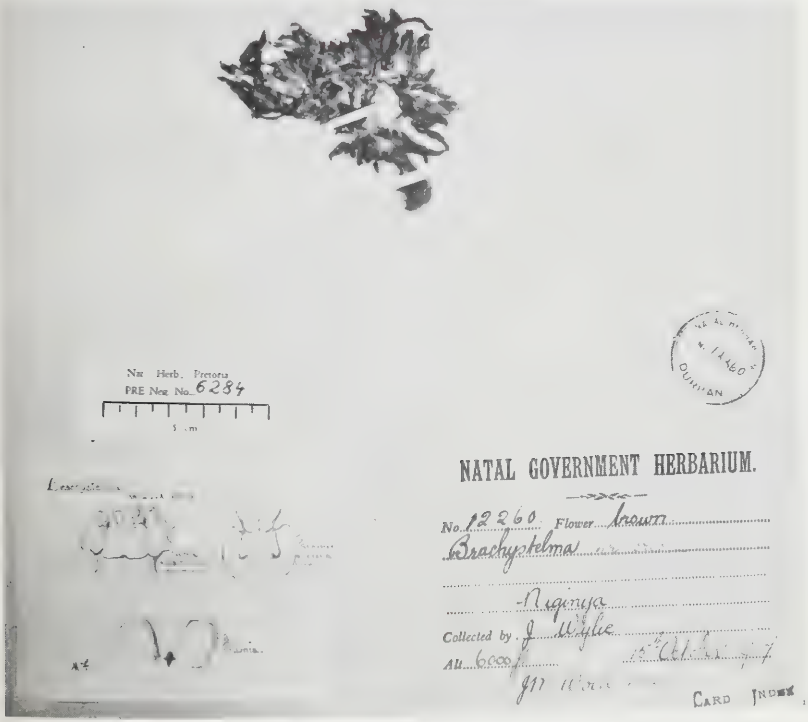
Herba perennis, (tuberosa ?), ramosa, ± 7 cm alta. *Folia* ± ovato-elliptica, 1,5–2 cm longa, ± 5 mm lata, crassiuscula. *Flores* 2–aliquot extra axillares, pedicellis ± 10 mm longis puberulis. *Sepala* lineari-lanceolata, 2–2,5 mm longa. *Corolla* ± 2,5 cm longa, brunea extus sparsim pubescens, intus puberula et sinos versus pilis longis induta; tubus campanulatus, 4–5 mm profundus; lobi lineari-lanceolati, ± 2,0 cm longi. *Corona* breviter basi connata; lobi exteriores marsupiiformes margine bilobulato, lobis interioribus confluentes; coronae lobi interiores incumbentes intus conspicue alati.

Type: NATAL: 1800 m 15/10/1907, *J. Wylie* in Herb. *Medley Wood 11229* (NH 12260 holo.).

Description—Perennial herb with tuberous rootstock, producing an annual stem up to about 7 cm tall, branched, possibly sparsely pubescent (slightly mouldy). *Leaves* more or less ovate-elliptic, 1,5–2 cm long, ± 5 mm broad, somewhat fleshy. *Flowers* 2–several from a flowering eye, extra axillary; peduncle rudimentary; pedicels ± 10 mm long, puberulous. *Sepals* linear-lanceolate, 2–2,5 mm long. *Corolla* ± 2,5 cm long, united for ± 3,5 mm, brown; tube campanulate ± 3 mm deep; lobes linear-lanceolate, ± 20 mm long, apparently nearly flat and thinly pubescent on outside and inside and with long stiff (white ?) hairs near the sinuses. *Corona* arising slightly above base of staminal column with slightly spreading, 5-indented base, forming 5 pockets with outer margin obtusely bilobuled and confluent on the margins with the inner corona lobes; inner lobes short, incumbent, with ear-like lateral expansions from the under surface covering the anthers. *Pollinia* subcircular, compressed with translucent inner margin, attached by short caudicles to shortly winged carrier nearly as large as the pollinia (not as drawn by M. Franks) (Fig. 1).

It will be noted that *B. perditum* is based on a single collection. The specimen has not been matched since it was collected in October 1907 by J. Wylie, curator of the botanic garden in Durban. Wylie collected plant material for J. Medley

Wood, director of the garden and herbarium and this particular specimen bears the Medley Wood number 11229 and Natal herbarium number 12260 with the locality Niginya, 6 000 ft. (1 800 m). Neither register gives further details of the locality and it cannot be traced. The spelling of the name is suspect and the nearest suggestion would be Nginya which also is not recorded. Medley Wood was in the habit of publishing annual reports on the activities of the garden but it so happens that no report was issued for 1907–1908 because of financial stringency at the time. The altitude of 1 800 m is a guide which suggests the foothills of the southern Natal Drakensberg. Even this is a very large area in which to search optimistically for a small rare herb which is recognisable for only a relatively short period of the year.



Nat Herb. Pretoria
PRE Neg No. 6284

NATAL GOVERNMENT HERBARIUM.

No. 12260 Flower brown
Brachystelma [illegible]
Niginya
Collected by J. Wylie
Alt. 6000 ft. [illegible]

CARD INDEX

FIG. 1.
B.perditum, photograph of *Wylie 12260* in Natal Herbarium, Durban, with drawings of dissections by Millicent Franks in bottom left corner, x½.

Note: While the above was in press Mr Pierre du Toit, recently transferred to BRU, Natal Herbarium, made a further search for possible clues to the correct locality record. He found several other specimens collected by Wylie at the same time. These established the fact that in October 1915 Wylie was on a collecting exhibition via Ntabamhlope (recorded as Tabamhlope) to Giants Castle in the Drakensberg. A few miles north of the Ntabamhlope Mountain and Police Station is the mountain Nyiginye. There is no doubt in my mind that Wylie's Niginya was a variant spelling of this and that in this area is the greatest hope of rediscovering *B. perditum.*

It is obvious that the specimen created an early interest because Millicent Franks, artist to Medley Wood, made drawings of the coronal structure which are attached to the herbarium sheet NH 12260 (Fig. 1); the identification is given as near *B. crispum* (= *B. caudata*) and on the base of the label is written ''unique''. The unique structure is seen in the winged inner corona-lobes clearly drawn by M. Franks. The accuracy of the drawing has been confirmed except that the pollen-carrier is larger than depicted. Until a fresh flowering specimen is discovered, the present scrap is the only evidence of a species which may have a lost cause—perdition its unkind fate among many other flowers doomed to bloom unseen.

Brachystelma australe R. A. Dyer, sp. nov., *B. pulchello* (Harv.) Schltr. affine, corolla latiore, intus pilosa, tubo 2–3 mm profundo, conspicue purpureo-vel luteo-fasciato differt.

Herba perennis tuberosa, basi ramosa; rami patentes vel diffusi, spasim breviter pilosi vel subglabri. *Folia* ± elliptico-lanceolata, basin versus attennata, 10–20 mm longa, 3–8 mm lata, glabra vel margine sparsim ciliato. *Flores* 1 extra axillares, pedicellis ± 10 mm longis. *Sepala* lineari-lanceolata, 3–4 mm longa. *Corolla* ± 20 mm diam., breviter late campanulata; tubus 2–3 mm profundus, supra plerumque pilosus, transverse fasciatus; lobi ovato-lanceolati, 8–10 mm longi, basi ± 4 mm lati, patenti-recurvi, apicem versus margine recurvato, sparsim pilosi. *Corona* breviter tubulata, lobis exteriosibus marsupiiformibus, margine ad medium anguste V-formato vel rimato; lobi interiores lanceolati, incumbenti.

Type: TRANSKEI—3129 (Port St. Johns): Lupatane waterfall, about 28 km east of Lusikisiki near coast (-BD), 12/12/1972, *O. Leistner 3504* (PRE, holo.).

Perennial herb with tuberous rootstock. *Tuber* irregular, sometimes becoming exposed above ground, with 1—few 'growing' eyes. *Stems* few—several produced annually, spreading or somewhat tufted, sparsely and minutely pubescent. *Leaves* mainly elliptic-lanceolate tapering to the petiole-like base, 10–20 mm long, 3–8 mm broad, glabrous or with few hairs. *Flowers* 1 from a flowering eye, produced laterally; pedicel slender, 7–10 mm long. *Sepals* linear-lanceolate, 2–4 mm long. *Corolla* ± 20 mm diam., broadly campanulate to saucer-shaped, divided about two-thirds to base, sparsely pubescent with spreading hairs or glabrous round corona; tube 2–3 mm deep, transversely purplish marked on yellow round corona (or purplish with yellow markings) and sometimes extending for nearly full length of lobes, sometimes blotched; lobes ovate-lanceolate, attenuate, 8–10 mm long, ± 4 mm broad at base with margins variably recurved, spreading-recurved from tube. *Corona* united at base forming 5 pockets, with outer margin narrowly V-shaped or slit to half way, confluent laterally with the inner lobes; inner lobes ± lanceolate, incumbent on the anthers but not exceeding them. *Pollinia* about 0,3 mm long and broad with the inner translucent margin angled at the apex, connected by short caudicles to the carrier; carrier with small lateral swellings or pseudo-wings (Fig. 2).

The accepted distribution range of *B. australe* is from near Port St. Johns in the Transkei northwards along the coastal region to the neighbourhood of Port Shepstone at Oribi Gorge. *Leistner 3504* was designated as the holotype because the material was preserved direct from the wild habitat whereas the other specimens are mainly from tubers in cultivation.

TRANSKEI—3129 (Port St. Johns): Umsikaba River (-BD), 10/11/1970, *R. G. Strey 10110;* Lupatane waterfall, about 28 km E. of Lusikisiki on coast, 12/12/1972, *O. Leistner 3504;* Jan. 1937, *H. J. Eyling* (BOL); *H. C. Bellew* (BOL); *D. McMurtry* (NBG).
NATAL—3130 (Port Edward): on sandstone rocks, 240 m. 21/12/1960, *S. Kitching 67;* 17/10/1958, *S. Kitching,* PRE *54351.*
—3030 (Port Shepstone): Umtamvuma Forest Reserve (-CB); 15/12/1967, *R. G. Strey 6973* (NH); Gilbralta farm, 8/11/1970, *R. G. Strey 10610* (NH).

The specimens collected by H. C. Bellew and H. G. Eyling and grown at the National Botanic Gardens, Kirstenbosch in 1937, were regarded as an undescribed species at the time and have remained unnamed until now. There is a close relationship with *B. pulchellum* (Harv.) Schltr., *B. modestum* R. A. Dyer and others, but a narrow view of species, guided by distribution records, seems essential in this group because a broad view leads to an untenable conglomerate.

Brachystelma bruceae R. A. Dyer, sp. nov., nom. nov.; *B. pulchellum* Bruce in Flower Pl. Afr. **29:** t. 1121 (1952), non Schltr.

Herba perennis affinis *B. pulchello* (Harv.) Schltr., corolla majore, concolorata, haud tubulosa, lobis longioribus rotatis differt.

Type: TRANSVAAL—2530 (Lydenburg): Kaapsehoop (-DB), 1650 m. Nov. 1949, *L. E. Codd 5756* (PRE, holo.).

Perennial herb with tuberous rootstock. Tuber up to about 7 cm diam., sometimes developing tuberous outgrowths from the upper surface and producing

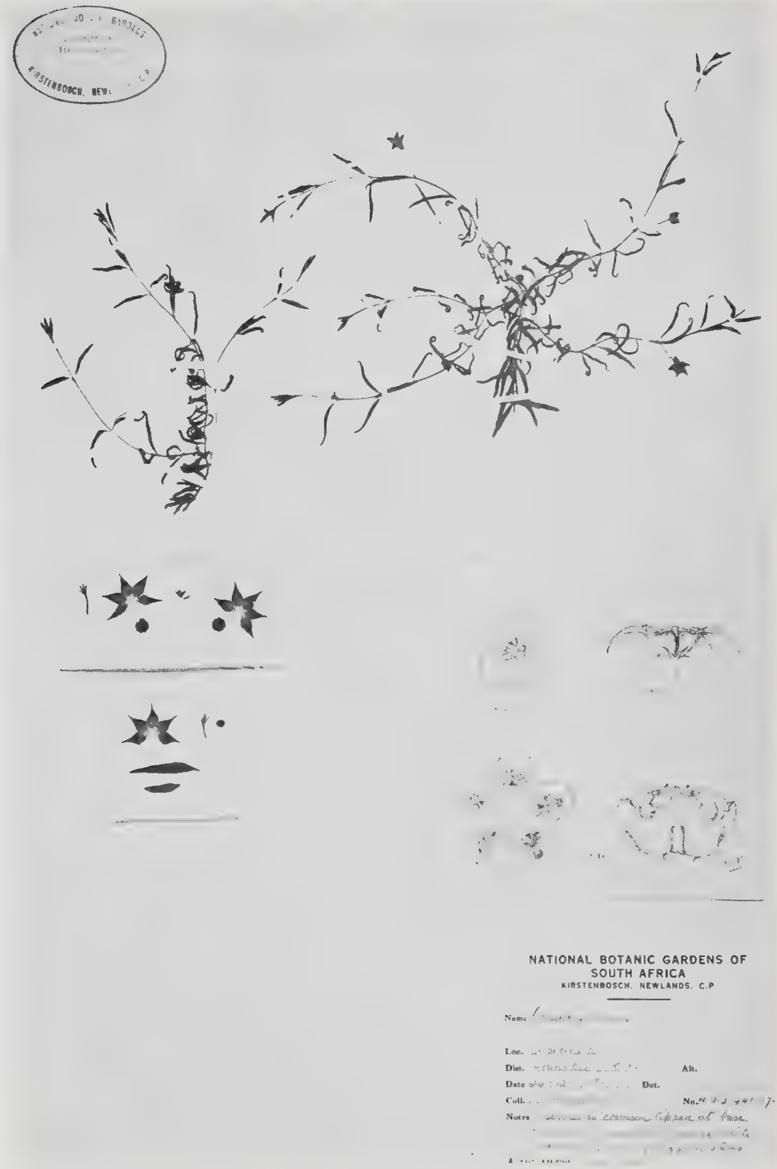


FIG. 2.

B. australe, photograph of specimen in Compton Herbarium, Kirstenbosch with drawings made from living material in garden.

1—few annual stems; stems prostrate sometimes freely branched near base, up to about 12 (20) cm long, purple-tinged, minutely crisped-pubescent. *Leaves* shortly petiolate, ovate to broadly ovate, slightly fleshy, usually 10–15 mm long 5–10 mm

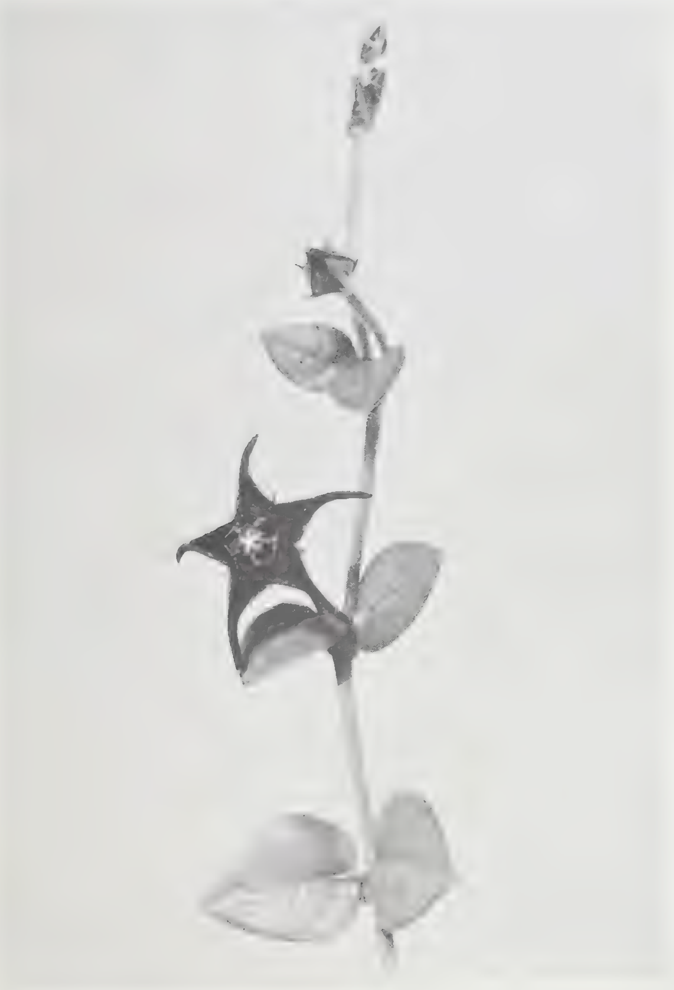


FIG. 3.
B. bruceae, branch from type plant in cultivation at B.R.I., *Codd 5756* from Kaapschehoop.

broad, dark purple-green above, paler underneath, glabrous except for few minute crisped hairs on margin and midrib below. *Flowers* solitary, extra-auxillary; pedicels 7–15 mm long, minutely crisped-pubescent. *Sepals* linear-lanceolate, ±3 mm long. *Corolla* 1,5–1,8 mm diam., divided two-thirds to three quarters to base with no tube, concolorous, purple-maroon, darker towards tips, glabrous, lobes ovate-lanceolate, rotate, with margins recurved towards tips, becoming somewhat recurved. *Corona* purple-maroon, cup-shaped at base 1,5 mm deep forming 5 pockets with their outer margin emarginate, confluent with inner corona-lobes; inner corona-lobes arising slightly within the outer, oblong, incumbent on the anthers (Fig. 3).

The typical form is known only from the Kaapsehoop mountains of the eastern Transvaal, where L. E. Codd recorded it in whitish sandy soil over Black Reef Quartzite with sparse grass cover.

TRANSVAAL—2530 (Lydenburg) Kaapsehoop (-DB), 1650 m., Nov. 1949, *L. E. Codd 5756, 6475,* Dec. 1937, *F. Z. van der Merwe s.n.;* Godwan River Station, Jan. 1923, *J. H. and J. Davison 7.*

When Eileen Bruce described the plant figured on plate 1121 in *Flowering Plants of Africa,* 1952, under the name *Brachystelma pulchellum* (Harv.) Schltr. she remarked that it differed from the description of the typical form from Natal in the larger concolorous purple-chocolate flowers with no trace of transverse yellow lines at the base of the lobes. In addition the Natal plants do have a shallowly saucer-shaped corolla as compared with the completely expanded flat corolla of the plants from the eastern Transvaal. To retain the plant illustrated on *Flower. Pl. Afr.* t. 1121 as a form *B. pulchellum* creates further taxonomic problems in deciding the relationship to closely related taxa such as *B. coddii* and the subspecies of *B. bruceae* which follows. The isolation between the forms must be of very long standing.

Brachystelma bruceae subsp. **hirsutum** R. A. Dyer, subsp. nov., corolla concolorata, pilis purpureis hirsutis, differt.

Type: TRANSVAAL—2531 (Komatipoort): ±10 km. S. of Barberton, *Stirton 1841* (PRE, holo.)

Perennial herb with small tuber. *Stems* produced annually, becoming prostrate. *Leaves* ovate to elliptic-ovate, ±1 cm long, slightly fleshy. *Flowers* 1 (2) extra-axillary; pedicel ± 1 cm long. *Corolla* 1,6–1,8 (2,5) cm diam., divided two-thirds to four-fifths to base, covered on upper surface with long purplish hairs, concolorous, without tube; lobes rotate, ovate-lanceolate to linear-lanceolate, 6–9 mm long with recurved margins. *Corona* shortly united at base for about 2 mm forming 5 pockets with V-U shaped outer margin, and confluent with the inner lobes; inner lobes, arising slightly within the outer and with a slight ridge at their base, incumbent on the anthers. *Pollinia* 0,25–0,3 mm long, somewhat compressed, with inner translucent margin and slightly pointed at upper extremity, attached by short caudicles to shortly winged carrier.

TRANSVAAL—2531 (Komatipoort): ±10 km S. of Barberton on Mendor Farm, near Ngomangoma Stream, stony outcrop about 50 m above stream in rock-fissures of plateau (-CC), 30/3/76, *C. H. Stirton 1841;* Nov. 1938, *F. Z. van der Merwe s.n.*

In 1937 and 1938 the late F. Z. van der Merwe, a medical man with a keen interest in botany, collected single specimens of *Brachystelma* in the eastern Transvaal which only now receive positive identifications under *B. bruceae* and *B. bruceae* subsp. *hirsutum*, respectively. Neither of the specimens received a precise locality at the time of incorporation into PRE and remained unmatched for many years. The difference between them is in the concolorous purplish-hirsute corolla of *B. bruceae* subsp. *hirsutum* and this appears to be linked with a slightly greater diameter and more deeply divided corolla. There is very little if any constant difference in the coronal structure.

Brachystelma petraeum R. A. Dyer, sp. nov., *B. pulchello* (Harv.) Schltr. et *B. australi* R. A. Dyer affine, ambobus habitu, coronae lobis exterioribus margine breviter bidentatis, corollae lobis pilis caducis ciliatis differt.

Herba perennis humilis tuberosa. *Rami* pauci vel plures patentes puberuli. *Folia* elliptico-ovata vel elliptico-lanceolata, 5–12 mm longa, 3–7 mm lata, breviter petiolata, glabra vel sparsim puberula, *Flores 1*, extra axillares producti; sepala ± lineari-lanceolata, 3–4 mm longa. *Corolla* ¾ dissecta, ± 20 mm diam. purpureo-maculata; tubus campanulatus, 3–5 mm longus; lobi ovato-lanceolati, 7–10 mm longi, attenuati, margine pilis longis caducids induto. *Corona* basi breviter connata; lobi exteriores marsupiiformes, margine u-vel v-emarginato, breviter bidentato; lobi interiores ± oblongi valde incumbentes. *Pollinia* subpyriformia, circiter 0,3 mm longa. *Folliculi* cylindrici, ± 2,5 cm longi.

Type: NATAL–2930 (Pietermaritzburg): Byrne Valley Escarpment, 1500 m alt., 13/11/1975, *O.M.Hilliard 5601* (PRE, holo., NU,iso.)

Perennial herb with tuberous rootstock. *Tuber* comparatively large, irregularly shaped, wedged between rocks and in fissures, with one or few growing eyes. *Stems* produced annually, tufted or somewhat diffuse, branched, puberulous. *Leaves* elliptic-ovate or sometimes elliptic-lanceolate, 5–15 mm long, 3–8 mm broad, usually shortly petiolate, somewhat fleshy, glabrous or with few short hairs, mainly on margin. *Flowers* solitary, extra axillary; pedicels 10–20 mm long, puberulous. *Sepals* lanceolate to linear-lanceolate, 3–4 mm long. *Corolla* divided about three-quarters to base more or less 20 cm diam, dull purple-brown outside, mottled red on mustard-yellow within; tube shortly campanulate, 3–5 mm long; lobes from ovate-lanceolate base tapering to apex, 7–10 mm long; margin with long soft caducous hairs concentrated near sinuses. *Corona* slightly stipitate, saucer-shaped at the base, forming 5 pockets with narrowly U- or V- shaped margin, extending into 2 short teeth, confluent laterally with inner corona-lobes; inner lobes incumbent on backs of anthers and nearly meeting over the staminal column, with or without a small basal tooth. *Pollinia* subpyriform, ± 0,3 mm long, with a translucent inner margin, attached to carrier by very short caudicles; carrier with small lateral wings. *Follicles* cylindric, ± 2,5 cm long (Fig.4).

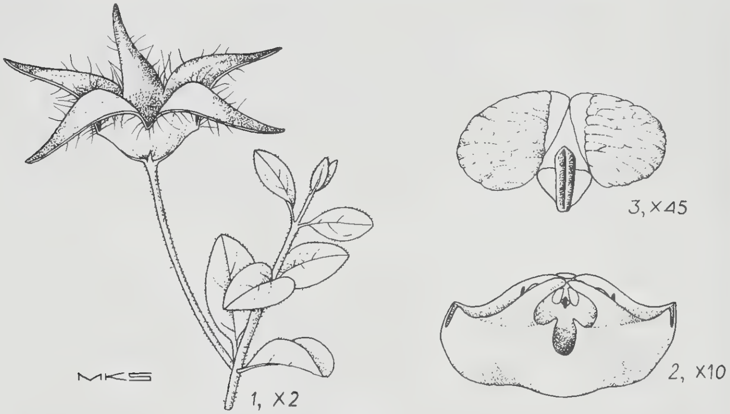


Fig. 4.
B. petraeun, drawn from type material in spirit, *Hilliard 5601*, Richmond, Natal.

This species is known only from the type collection from the Byrne Valley Escarpment near Richmond, Natal. It was thought at first to be able to include it in *B. pulchellum* (Harv.) Schltr. but the several differences in habit, size and ciliation of the corolla and difference in coronal structure made this course unrealistic. There is some affinity also with the newly described species *B. australe* but the habit, the pubescence and colouration of the corolla and coronal details are sufficient distinctions, supported by the wide difference between the coastal and rocky mountain habitats.

Brachystelma alpinum R.A. Dyer, sp.nov., corollae lobis pilis longis vibratilis ciliatis, coronae lobis exterioribus marsupiiformibus margine late U-formato distinguitur.

Herba tuberosa humilis delicata, simplex vel parce ramosa; tuber 2,5–3 cm diam., leviter depressum. *Rami* usque 5 cm longi, erecti vel demum patentes, minute puberuli. *Folia* ovata, late ovata vel oblongo-lanceolata, 1–2 cm longa, glabra vel margine sparsim papillato-ciliato, breviter petiolata. *Flores* 1, extra axillares, pedicellis ± 1 cm longis. *Sepala* lineari-lanceolata, ± 3 mm longa. *Corolla* 1,3–1,5 cm diam., breviter tubulata, extus leviter rugosa, intus pilosa; tubus late campanulatus 2 mm profundus, transverse fasciatus; lobi ± triangulares, 4,5 mm longi, basi 3 mm lati, apicem versus leviter replicati, sinos versus pilis longis vibratilis caducis ciliatis. *Corona* breviter tubulata, lobis exterioribus marsupiiformibus, margine late U-formato; lobis interioribus oblongis incumbentibus.

Type: LESOTHO–2928 (Marakabei): 2300–2500 in alt., Feb, 1975, *R.D.A. Bayliss 819* (PRE, holo.).

Perennial herb with tuber up to about 3 cm diam., slightly depressed, producing annually 1(2) delicate stems 3–5 cm tall (elongating in cultivation and becoming procumbent) minutely puberulous. *Leaves* variable, from broadly ovate to narrowly oblong-lanceolate, 1–2 cm long, glabrous or with few small papillae-like hairs on margin, shortly petiolate. Flowers 1, arising extra axillary from second or third node, possibly 2 on occasions; pedicel slender, about 1 cm long. *Sepals* linear-lanceolate, about 3 mm long. *Corolla* 1,3–1,5 cm in diam., slightly rugose outside, united in the lower half; tube broadly campanulate, 2 mm deep,

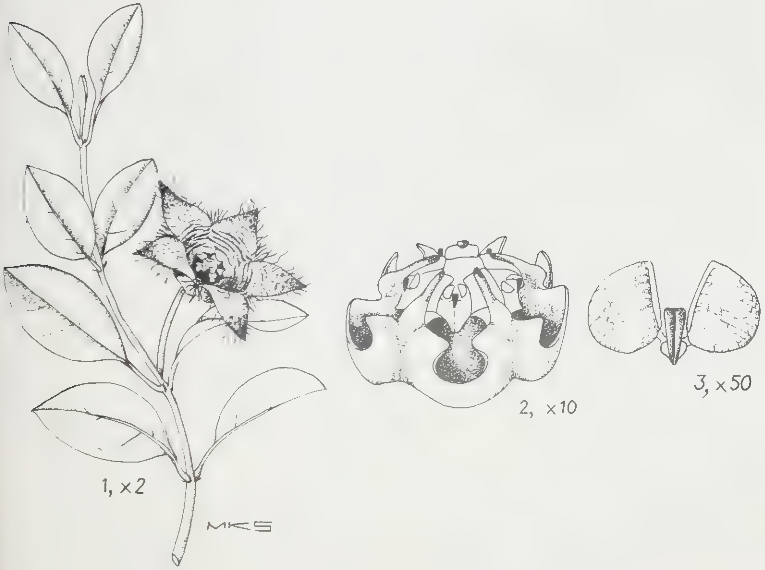


FIG. 5.
B. alpinum, drawn from type material in spirit, *Bayliss 819*, Lesotho.

transversely banded; lobes triangular, 4–4,5 mm long, 3 mm broad at base, with margins slightly replicate towards tips, with sparse, spreading pubescence on lower half and with few long vibratile, caducous hairs towards the sinuses. *Corona* somewhat fleshy, shortly tubular at base; outer 3 mm diam. and high, forming 5 pockets within and with the outer margin broadly U-shaped and confluent with the inner lobes; inner lobes oblong, incumbent on the anthers but not exceeding them. *Pollinia* subglobose, about 0,25 mm long with straight translucent inner margin, attached by short caudicles to a very shortly winged carrier (Fig.5).

Tubers were found on a hill behind the store at Ramas Gate in shale formation at an altitude between 2 300–2 500 m where plants are subject to high rainfall and intense cold. As far as my records go this is the highest altitude from which a species of *Brachystelma* has been collected in Southern Africa. Col. Bayliss obtained several tubers in February 1975 of which he presented two to me at the BRI, Pretoria, one to Miss G. Britten at the BRU, Grahamstown, and retained the rest to grow at his residence in Grahamstown. Those at BRI produced new herbaceous stems but failed to flower. One flowered for Col. Bayliss in Oct.-Nov. 1975. This latter was photographed and placed in preservative solution before being forwarded to BRI, where it was drawn and described.

In January 1976 a tuber at BRU, Grahamstown, produced an almost identical flower to *Bayliss 819* but it was associated with a label for a tuber collected by Col. Bayliss, No. 4763 together with *Stapelieae* and a *Ceropegia* in an arid part of Swaziland in 1969. *Bayliss 4763* had not flowered previously. To me it seems probable that the original *Bayliss 4763* had perished and that the label was inadvertently transferred by William Tsuane to the tuber from Lesotho, *Bayliss 819*. William Tsuane was appointed by me to the Botanical Survey staff in Grahamstown in 1925 and has since given 51 years of conscientious service to South African botany, but as Col. Bayliss admits, he is now almost in his dotage and might conceivably have mixed the labels. It would not be the first time for such a simple mishap to have occurred. It seems the only reasonable explanation for the discrepancy in the locality records. I cannot conceive that this miniature species could occur naturally in two such different habitats about 500 km apart.